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Dated 5 December 2003

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THE PATENT OFFICE  
F207  
15 NOV 2002  
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NAPBIN - 10

Patent application number

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15 NOV 2002

0226807.6

Full name, address and postcode of the or of each applicant (*underline all surnames*)

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08246506003

Patents ADP number (*if you know it*)

If the applicant is a corporate body, give the country/state of its incorporation

Title of the invention

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/

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Claim(s)

Abstract

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Statement of inventorship and right  
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Any other documents  
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*abstract included on page 5  
description*

I/We request the grant of a patent on the basis of this application.

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## I CRIPTION

The invention describes a device comprising a base container (1) supporting a top wrapping assembly (2). The top wrapping assembly (2) includes two support trays (4) & (5) each containing an individual roll of self-adhering film (3). Adjacent to the rolls of film (3) are two crimping rollers (6) & (7). The film (3) is extracted from each role and manually joined together and then placed in the space between the crimping rollers (6) & (7). The rollers are synchronized and can be rotated by way of a knob (8) through link gears and toothed belt.

The rollers (6) & (7) which can rotate in the opposite directions and towards each other so as to draw the film between the rollers and dispense into the base container (1) below.

The compliant rollers (6) & (7) are constructed in three sections. The section (11) at each end is a firm frictional material with interlocking features. The material grips the film to laminate and crimp it together during the rotation action and seal the edge of the film sheets.

The central area (12) is of a more compliant material allowing the bulky nappy to be drawn through between the rollers.

The rolls of film (3) could also be perforated at intermittent intervals to assist the user terminate the wrapping when the container (1) is full.

By way of a development of the design Fig 5 shows a design of bin where the top assembly comprises of further features developed to optimize the laminating effectiveness and the ergonomics.

The development includes a Lid 13, which supports two ratchet members 15 which move with the lid when opening and closing. During the opening movement the ratchets 15 which engages ratchet wheels at each end of one of the rollers, in this instance the roller being the front roller 7, which freely rotates about the drive gear supporting a series of pawls 18. The pawls 18 are positioned so that they will engage with the tooth form on the inside of the ratchet wheel 17 when rotating in the opposing direction effected by the closing operation of the lid 13. This engagement effects rotation of the compliant roller 7.

The compliant rollers 6 & 7 comprise of a gear form profile 11 at each end, which engage with a matching form on the adjacent roller so as to drive both rollers in synchronization.

An alternative cover 14 is positioned over the Film Rolls 3 and the compliant rollers. Within the cover 14 is provided an aperture 21 through which the product to be laminated is passed at the initiating stage of the lamination. The aperture 21 is positioned so as to optimize the location of the product passing through on the rollers 6 & 7 to achieve optimal lamination and to, if required regulate the size and type of product that can be passed through it.

Below the compliant rollers 6 & 7 are deflection blades 19 & 20 which part as film and the laminated product pass through, then returning to the start position. The deflection blades 19 and 20 prevent the film from picking up wrapping around the compliant rollers 6 & 7, so preventing the device from working

**FIG 1** Shows the base container with wrapped nappies and the top wrapping assembly

**FIG 2** Shows the device with the rolls of self-adhering film being loaded into the support trays

**FIG 3** Shows the device with the ends of the self-adhering film being joined in preparation to wrap the nappy

**FIG 4** Shows the nappy being inserted and drawn into the device

**FIG 5** Shows an alternative style of bin with a top assembly in the closed condition

**FIG 6** Shows the top assembly with the lid open ready to receive the nappy

**FIG 7** Shows the underside of the top assembly

**FIG 8** Shows the top assembly without the cover over the film rolls and rollers

**FIG 9** Shows the underside on the top assembly with the blades (19) & (20) closed

**FIG 10** Shows the assembly without the body or frame in particular the ratchet system which drives the rollers

**FIG 11** Shows the underside of the assembly with the nappy wrapped having passed through the rollers and the blades in an open condition

**FIG 12** Shows a section of the drive gear system

**CLAIMS**

- 1) A device incorporating two roles of self-adhering film (3) supported in adjacent parallel support trays (4) & (5)
- 2) As described above a device incorporating two adjacent rollers (6) & (7) over and between which the self-adhering film (3) is drawn and laminated
- 3) As described above a device incorporating rollers (6) & (7) for laminating the film
- 4) As described above a device incorporating rollers (6) & (7) for laminating the film, which comprise different sections where the end sections (11) are of an interlocking form that crimp and grip the film and also synchronizing the rotation of the rollers
- 5) As described above a device incorporating rollers for laminating the film, which comprise different sections of differing compliant material allowing the surface and film to comply to the form of the product passing between the rollers so as to maintain a close proximity to the form and shape the product being laminated and to increase the contact and adhesion of the surrounding film and to exclude as much air from within the lamination such that a vacuum effect is created contributing to the resistance of the two sheets of film to be separated
- 6) As described above a device with rollers which are rotated by a separate knob (8) or lever linked by gear or belt
- 7) As described above a set of rollers of which one roller incorporates a drive gear assembly comprising a drive plate 16 housing a pawl 18 which engages in a tooth form within the ratchet wheel 17, when the ratchet wheel 17 is rotated by the ratchet member 15 when moved in one direction but that the ratchet wheel 17 will not engage the pawl 18 when rotating in the opposite direction
- 8) As described above a set of blades 19 & 20 adjacent to the compliant rollers 6 and 7 which prevent the laminated film from sticking to the rollers 6 & 7
- 9) As described above with a cover plate 14 positioned above the rolls of film and the laminating rollers within which is an aperture through which the product to be encapsulated will pass and which directs the product to the optimal positioning on the rollers to achieve best performance of encapsulation
- 10) As described above a lid 13 which supports ratchets 15 which act on the ratchet gear 17 which drive the roller

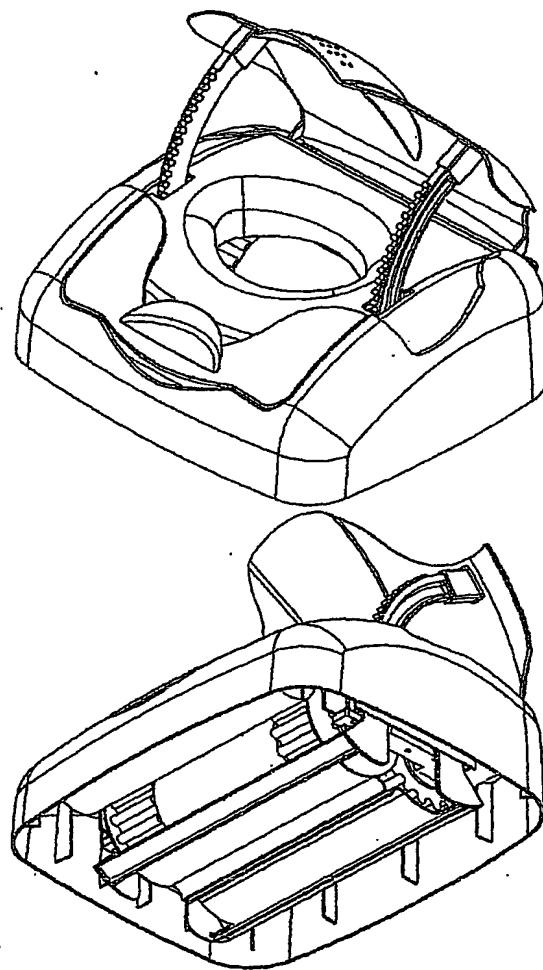
2<sup>nd</sup> July 2003  
By JMDA

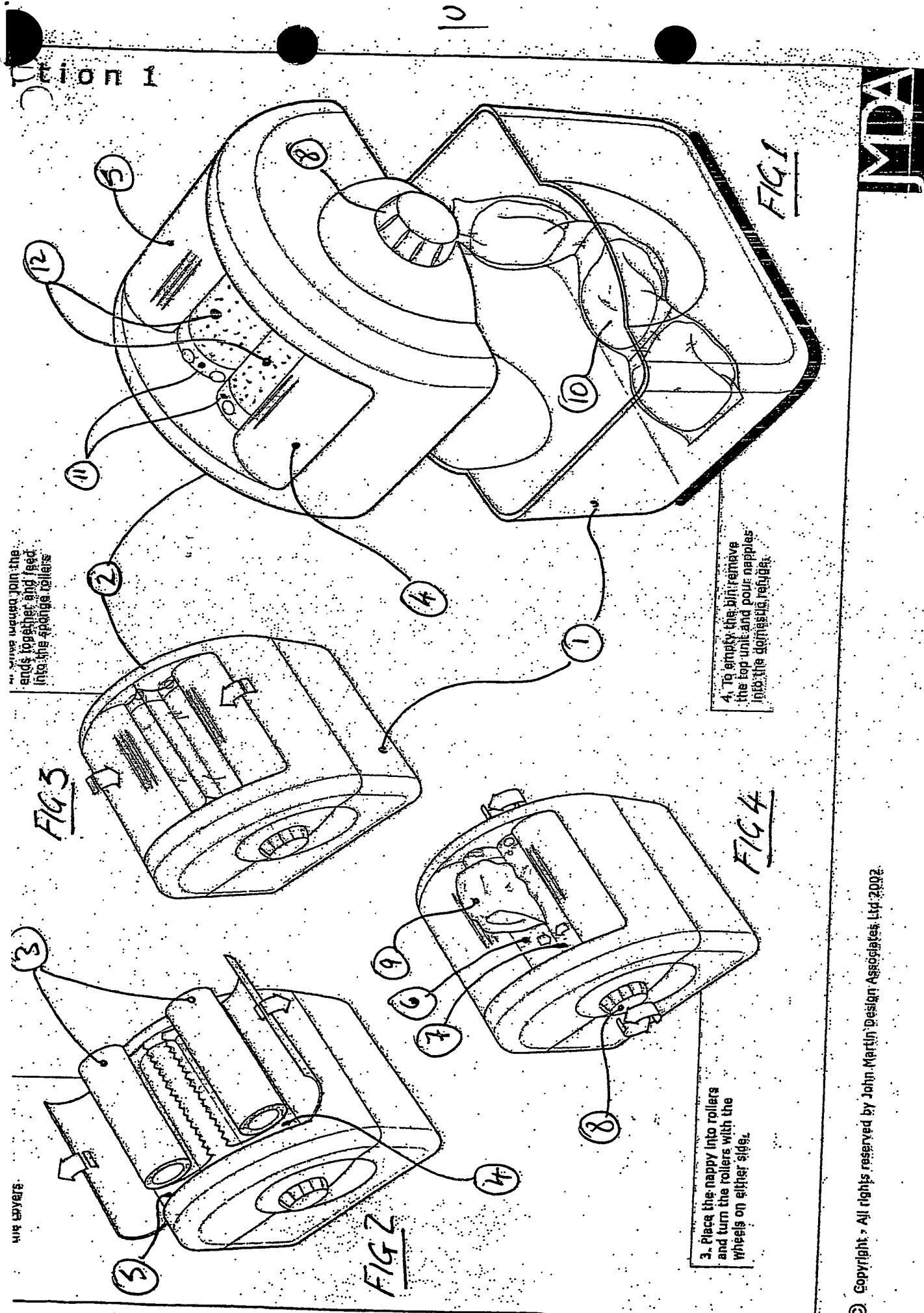
# NAPPY BIN PATENT

REF: NAPBIN-1OV2

## ABSTRACT

The invention relates to nappy bin for disposable of disposable baby nappy's. The particular feature of the invention is that the user can place a disposable soiled nappy onto compliant rollers and the device laminates and wraps the soiled nappy in self adhering film similar to cling film and discharges the sealed nappy into the container below, which will accommodate a quantity of wrapped nappy's.





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FIG 5.

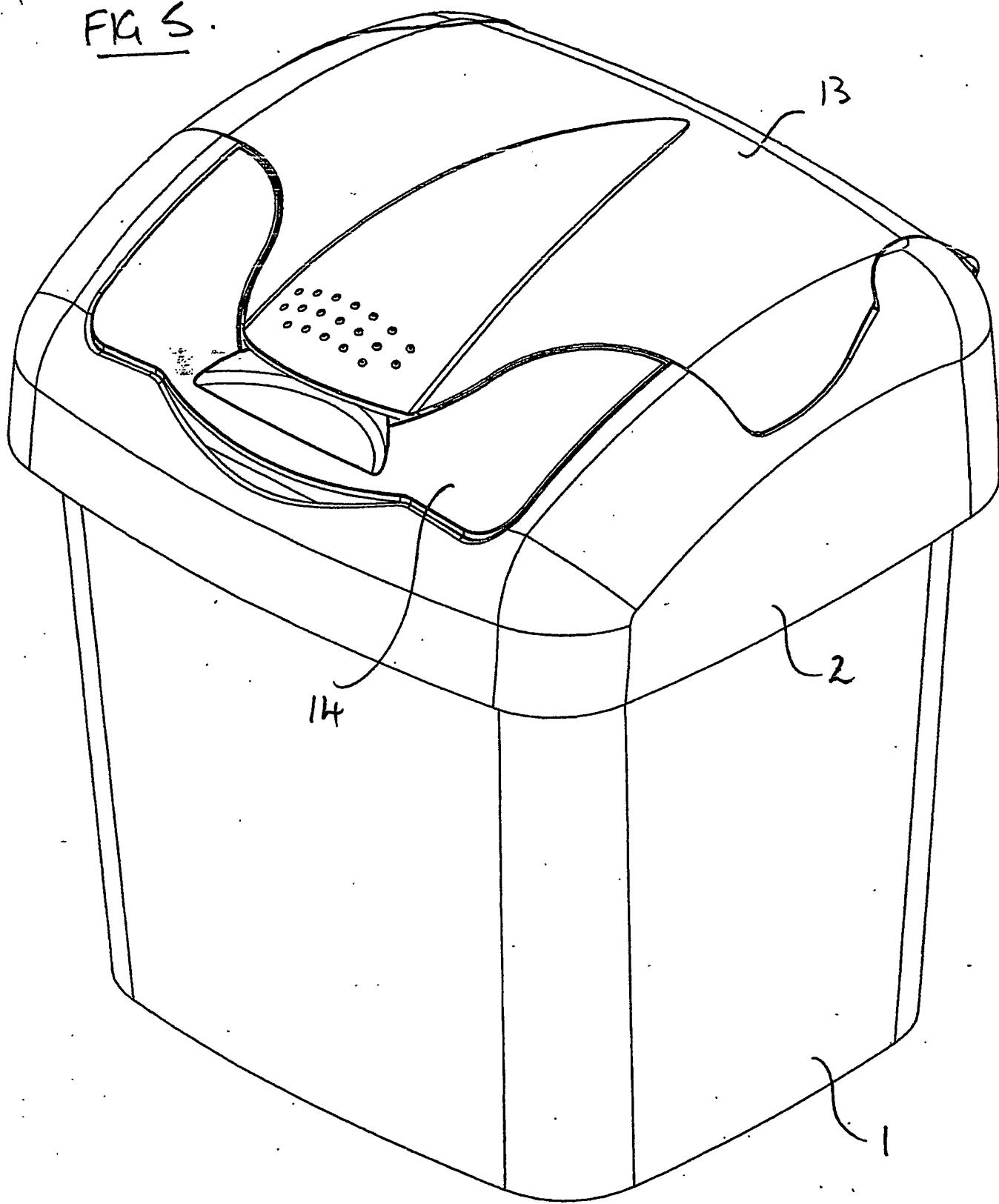


FIG 6

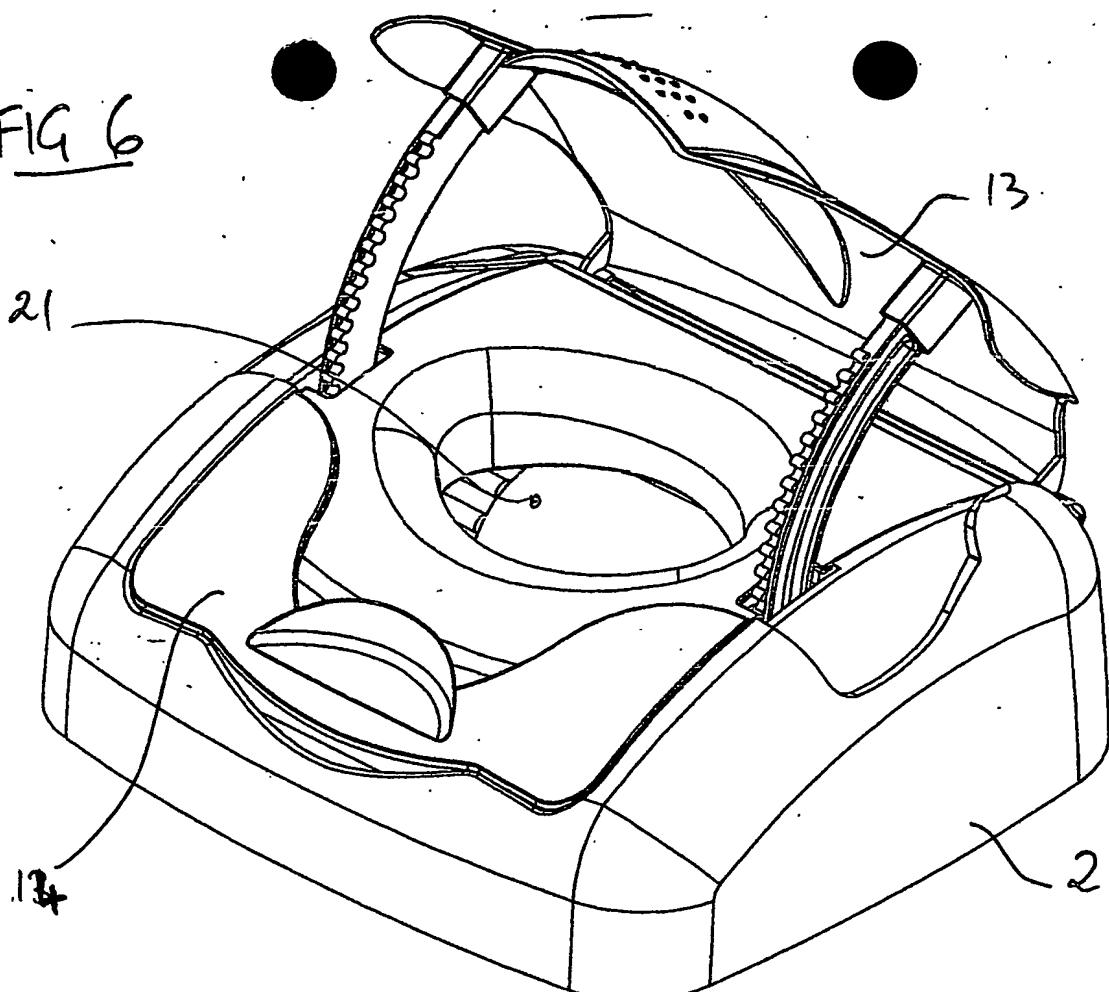


FIG 7

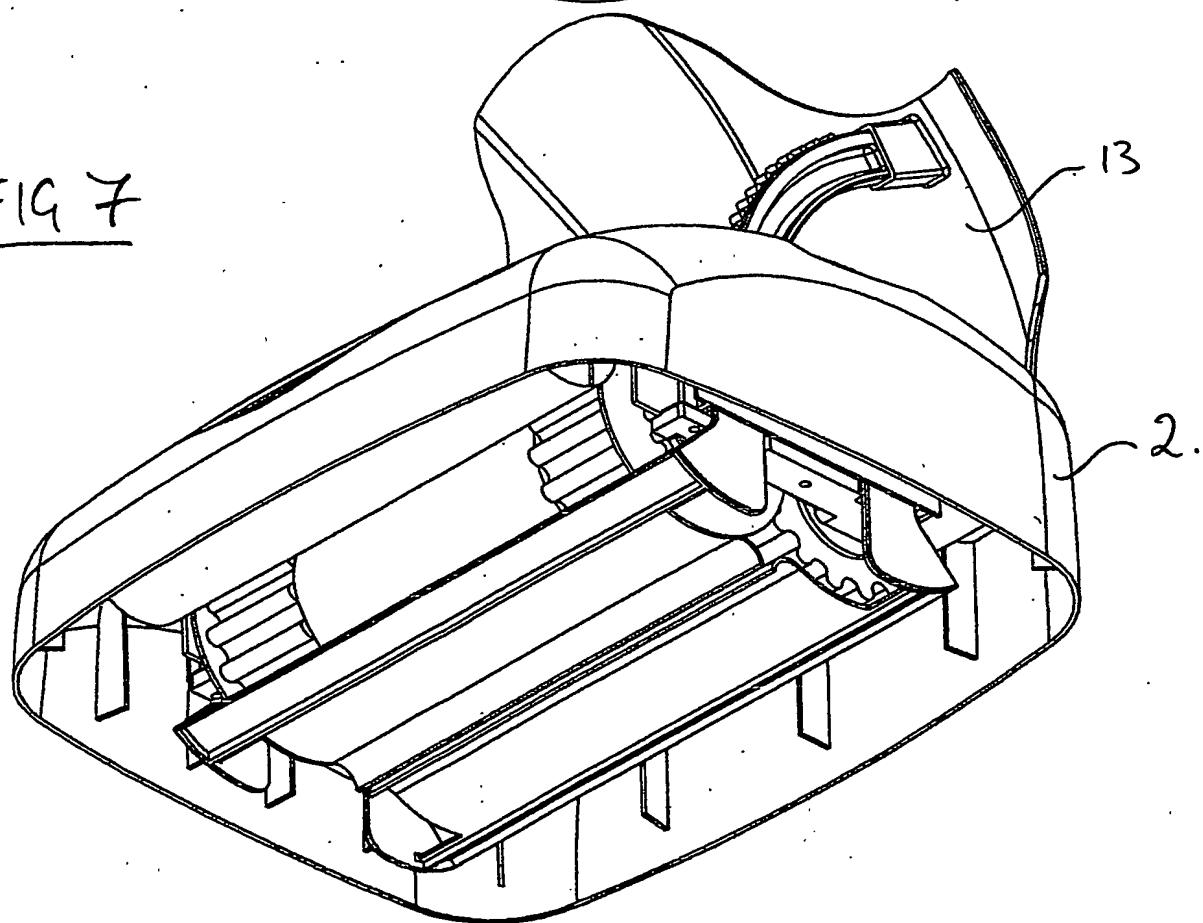


FIG 8

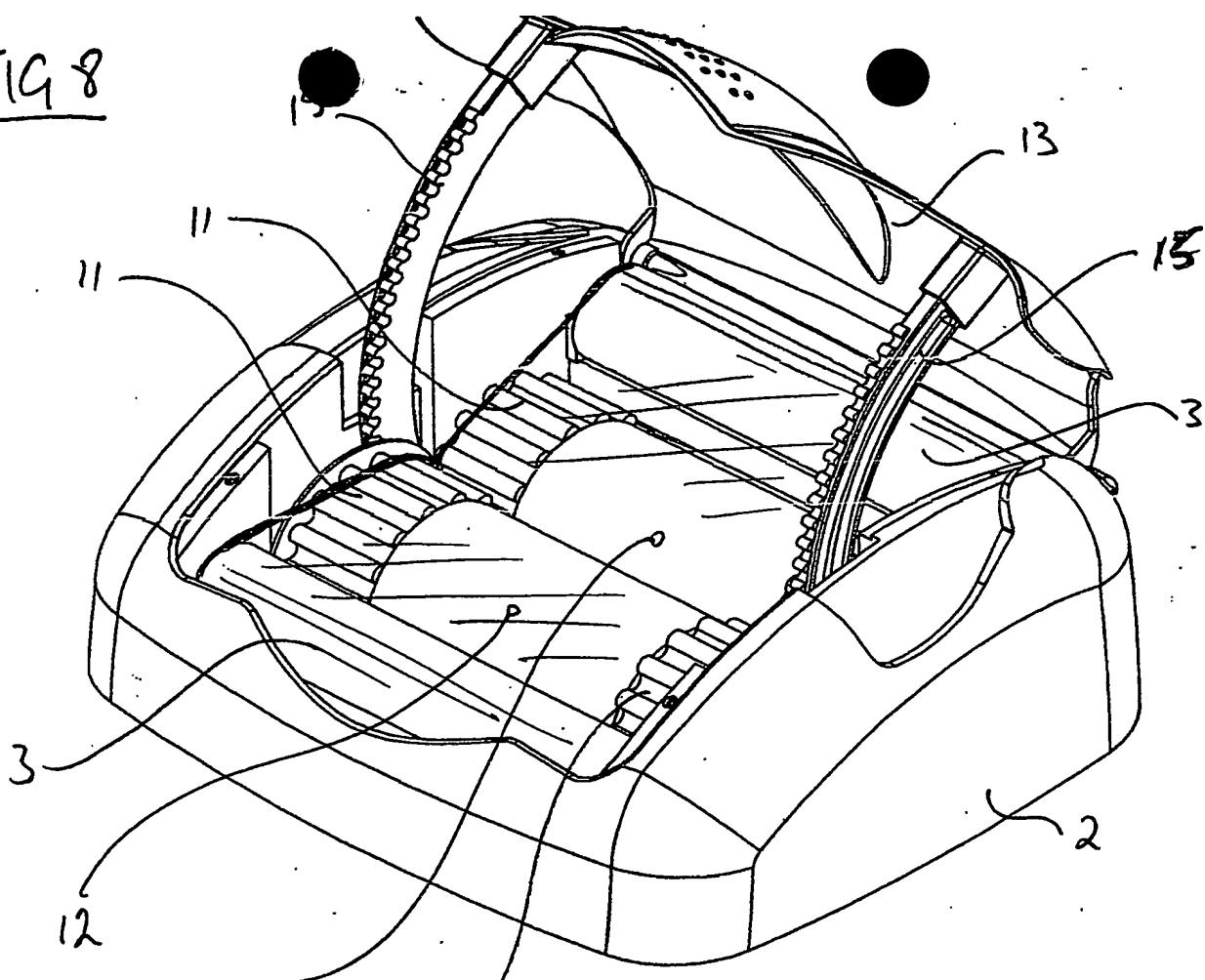


FIG 9

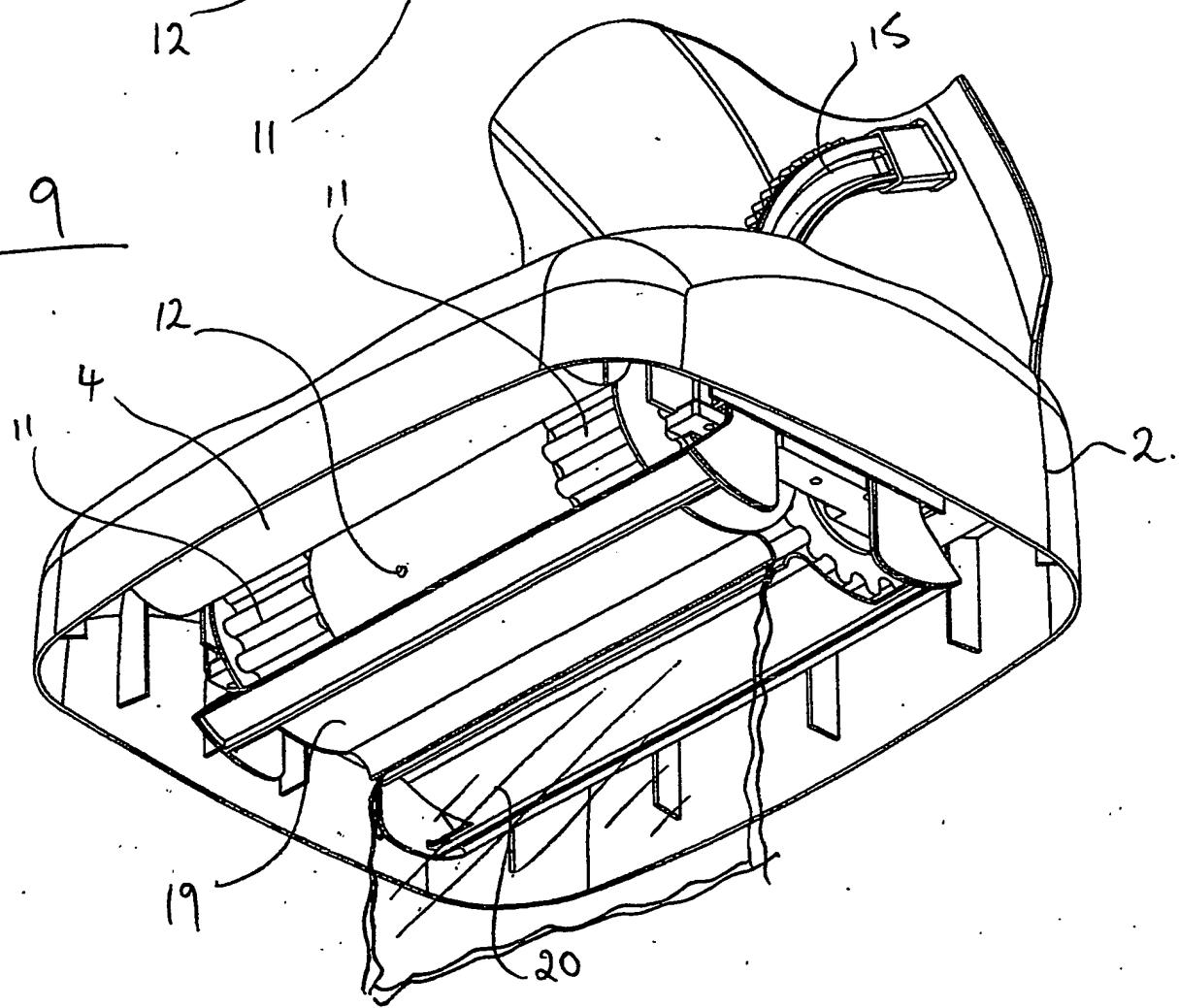


FIG 10

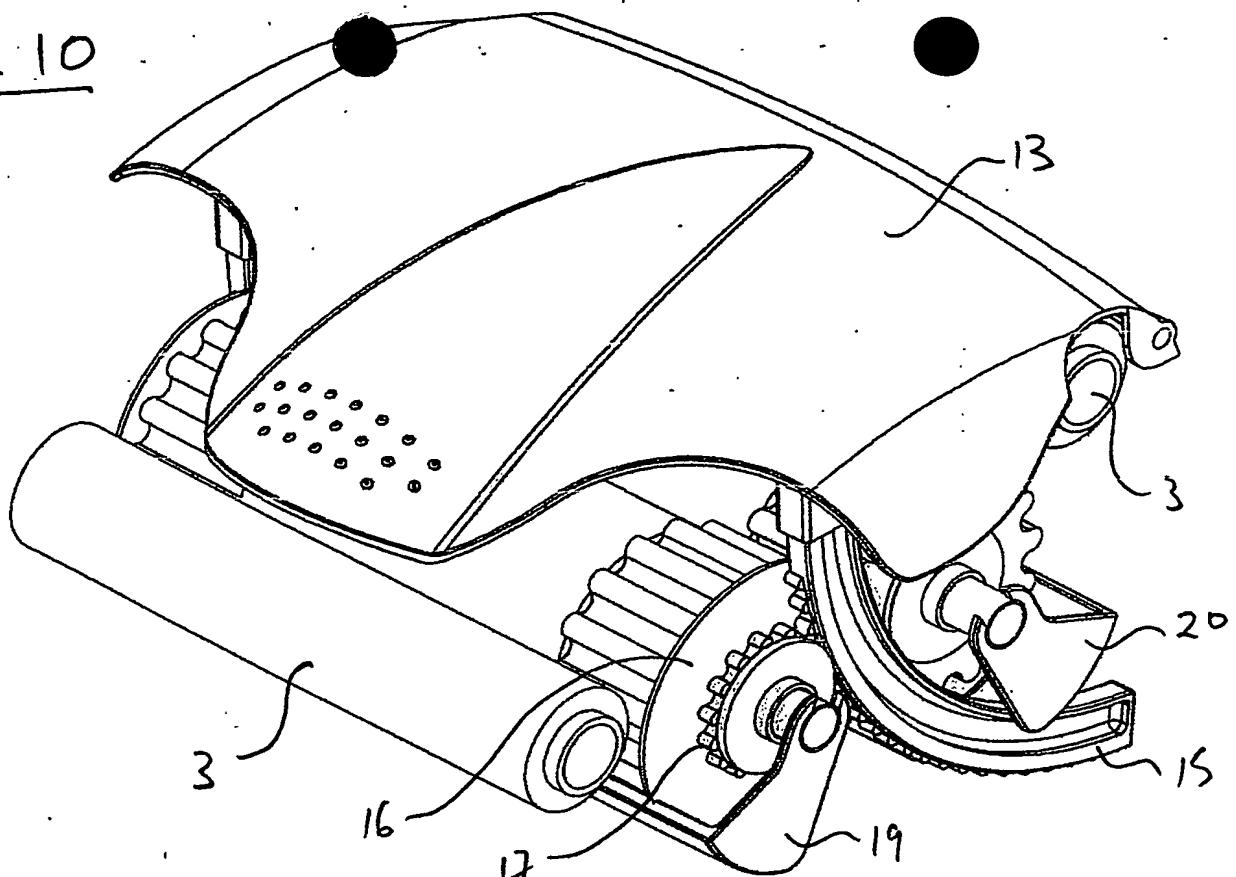
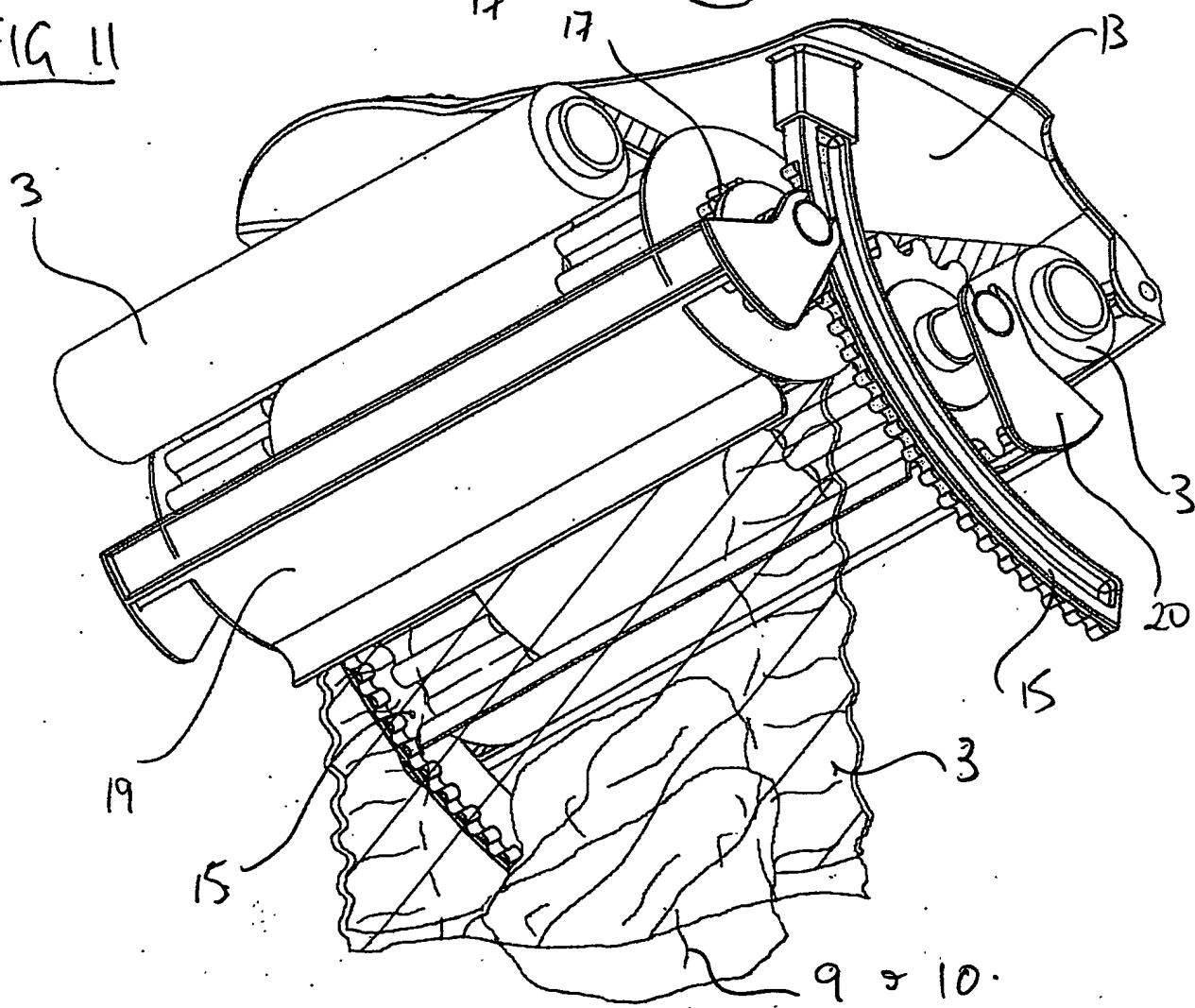


FIG 11



9 + 10.